-3-

LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of the claims in the application. Claims 5-12 and 15 are cancelled. Claims 1, and 16-18 are amended, and new claims 19-28 are added.

1. (*Currently amended*) A system for designing custom cutting bit profiles for use in machining a cylinder engine head, the system comprising:

a bit-design software program having means for creating, modifying, and storing specifications of the custom cutting bit profiles;

a customer computer for executing the bit-design software program;

a bit manufacturer computer; ~~and~~

a transfer medium for transferring the specifications from the customer computer to the bit manufacturer computer; and

a bit profile cutting machine for machining a blank tip according to the specifications.

2. (*Original*) The system of claim 1, wherein the transfer medium is a removable memory device.

3. (*Original*) The system of claim 1, wherein the transfer medium is electronic mail.

4. (*Original*) The system of claim 1, wherein the transfer medium is an Internet connection.

Claims 5-12 (*Canceled*)

13. (*Original*) A method of designing a custom bit for machining a valve seat of a cylinder engine head, the method comprising the steps of:

selecting a template tip from a plurality of template tips;

specifying a plurality of segments;

overlaying the plurality of segments on the template tip to create a representation of the custom bit; and

sending the representation to a bit manufacturer.

14. *(Original)* The method of claim 13, wherein the step of selecting a template tip comprises the step of selecting a profile from a database of profiles, each profile of the database of profiles having a predetermined plurality of segments, and wherein the step of specifying a plurality of segments comprises the step of modifying the predetermined plurality of segments.

15. *(Canceled)*

16. *(Currently amended)* A method of doing business between a tip manufacturer and a customer for creating a custom tip for use in machining engine cylinder heads, the method comprising the steps of:

supplying an automated tip profile design program to the a customer;

creating a custom tip utilizing the automated tip profile design program, wherein the
customer performs a design procedure to create the custom tip, the design procedure
comprising the steps of:

selecting a blank profile;

specifying at least one profile segment for modifying the blank profile to
create the custom tip; and

saving parameters for the custom tip in a tip file; and

delivering the tip file to the a tip manufacturer to produce the custom tip.

17. *(Currently amended)* The method of doing business of claim 16, wherein the step of delivering the tip file comprises the step of uploading the tip file to the tip manufacturer utilizing an electronic means.

18. *(Currently amended)* The method of doing business of claim 16, wherein the step of supplying an automated tip profile design program comprises the step of downloading the automated tip profile design program to the customer utilizing an electronic means.

19. (*New*) The system of claim 1 wherein the software design program comprises:

an active work area for displaying the diagram;

a tool box window for creating and modifying the cutting tip profile of the diagram, the tool
box window comprising:

a creation window having means for specifying a plurality of segments, the plurality
of segments forming the cutting tip profile, for displaying a set of parameters
for each segment, the set of parameter comprising at least one angle or radius
and one of a length and a combination of starting location and stopping
location; and

a set of operations for modifying the profile by selecting functions for adding or
deleting segments or modifying the set of parameter for at least one segment
of the plurality of segments.

20. (*New*) The system of claim 19, wherein the tool box window further comprises a blank
tips window for displaying a plurality of blank template tips and the software design program further
comprises:

an overlay function for comparing the profile with the plurality of blank template bits;

a selection function for selecting one of the plurality of blank template bits that best fits the
profile.

21. (*New*) The system of claim 20, wherein the selected blank template bit and the profile
are saved in a computer memory.

22. (*New*) The system of claim 19, wherein the tool box window further comprises an
elastics window having a passive segment option for adding a passive segment to the profile, the
passive segment for automatically extending the profile to a maximum permitted height.

an elastics window having means for modifying an elastic segment of the plurality
of segments; and

a blank tips window for displaying a plurality of available blank template bits;

-6-

wherein the software design program automatically overlays the cutting tip profile

on a selected blank template bit of the plurality of available blank template

bits.

23. (*New*) The system of claim 19, wherein the segment is a line segment defined by an

angle and one of a length and a change along an axis.

24. (*New*) The system of claim 19, wherein the segment is an arc segment defined by a start

tangent, a stop tangent and a radius.

25. (*New*) The system of claim 19, further comprising a calculator for determining the

positioning of a tip holder of the machining apparatus from a plurality of position values, the tip

holder for holding the custom cutting tip.

26. (*New*) The system of claim 25, wherein the plurality of position values comprises a

valve diameter value, a pilot diameter value, and a margin value.

27. (*New*) The method of claim 13 wherein the step of specifying comprises selecting

functions within a tool box window comprising:

    a creation window having means for specifying a plurality of segments, the plurality of

        segments forming the cutting tip profile, for displaying a set of parameters for each

        segment, the set of parameter comprising at least one angle or radius and one of a

        length and a combination of starting location and stopping location; and

    a set of operations for modifying the profile by selecting functions for adding or deleting

        segments or modifying the set of parameter for at least one segment of the plurality

        of segments.

28. (*New*) The method of claim 27, wherein the step of selecting a template tip comprises

opening a blank tips window within the tool box window, wherein the blank tips window displays

-7-

a plurality of blank template tips and wherein a user selects one of the plurality of blank template

bits that best fits the profile.